

three inches = one foot  
one and one half inches = one foot  
one inch = one foot  
three quarters inch = one foot  
one half inch = one foot  
one quarter inch = one foot  
three eighths inch = one foot  
one eighth inch = one foot

PLUMBING ABBREVIATIONS

A/E	ARCHITECT / ENGINEER	L/S	LITER PER SECOND
AD	AREA DRAIN	LA	LABORATORY AIR
AFB	ABOVE FINISH FLOOR	LAV	LAVATORY
AFG	ABOVE FINISH GRADE	LBS/HR	POUNDS PER HOUR
AG	AIR GAP	LCW	LABORATORY COLD WATER
AP	ACCESAN PANEL	LHW	LABORATORY HOT WATER
AS	AUTOMATIC SPRINKLER	LNG	LIQUID NATURAL GAS
ASD	ADJUSTABLE SPEED DRIVES	LOX	LIQUID OXYGEN
ASD	AUTOMATIC SPRINKLER DRAIN	LV	LABORATORY VACUUM
ASHRAE	AMERICAN SOCIETY HEATING, REFRIGERATION, AIR CONDITIONING ENGINEERS	LW	LOW WATER
		M	METER
ASME	AMERICAN SOCIETY MECHANICAL ENGINEERS	MA	MEDICAL AIR
		MAV	MANUAL AIR VENT
ASPE	AMERICAN SOCIETY PLUMBING ENGINEERS	MBH	1000 BTUH
ASR	AUTOMATIC SPRINKLER RISER	MED	MEDICAL
AV	ACID VENT	MER	MECHANICAL EQUIPMENT ROOM
AW	ACID WASTE	MH	MANHOLE
		MOU	MEMORANDUM OF UNDERSTADING
BFP	REDUCED PRESANURE BACKFLOW PREVENTER	MSB	MOP SERVICE BASIN
		MV	MEDICAL VACUUM
BHP	BREAK HORSEPOWER		
BSP	BLACK STEEL PIPE	N2	NITROGEN
BT	BATHTUB	N2O	NITROUS OXIDE
BTU	BRITISH THERMAL UNIT	NC	NORMALLY CLOSED
BTUH	BRITISH THERMAL UNIT PER HOUR	NG	NATURAL GAS
C	CELSIUS	NIC	NOT IN CONTRACT
CGA	COMPRESSED GAS ASSOCIATION	NO	NORMALLY OPEN
CI	CAST IRON	NOM.	NOMINAL
CO	CLEANOUT	NPW	NON POTABLE WATER
CS	CLINICAL SINK	NTS	NOT TO SCALE
CV	CONTROL VALVE	O2	OXYGEN
CW	DOMESTIC COLD WATER	OC	ON CENTER
DI	DEIONIZED WATER	OD	OUTSIDE DIAMETER
DN	DOWN	OFD	OVERFLOW DRAIN
DOE	DEPARTMENT OF ENERGY	OR	OPERATING ROOM
DS	DOWNSPOUT	OVFL	OVERFLOW
DW	DISHWASHER	PA	PASCAL
DWG	DRAWING	PD	PRESSURE DROP OR DIFFERENCE
DWH	DOMESTIC WATER HEATER	PDI	PLUMBING AND DRAINAGE INSTITUTE
DWR	DRINKING WATER RETURN	PG	PRESSURE GAGE
DWS	DRINKING WATER SUPPLY	PP	PLUMBING PUMP
DWV	DRAIN WASTE VENT	PPM	PARTS PER MILLION
EL	ELEVATION	PRS	PRESSURE REDUCING STATION
EMCS	ENERGY MONOSERRAT AND CENTRAL SYSTEM	PRV	PRESSURE REDUCING VALVE
		PSI	POUNDS PER SQUARE INCH
EPA	ENVIROMENTAL PROTECTION AGENCY	PSIA	POUNDS PER SQUARE INCH ATMOSPHERE
EPACT	ENERGY POLICY ACT	PSIG	POUNDS PER SQUARE INCH GAUGE
ESC	ESCUTCHEON	PTRV	PRESSURE TEMPERATURE RELIEF VALVE
ESH	EMERGENCY SHOWER	PW	POTABLE WATER
ET	EXPANSION TANK	RD	ROOF DRAIN
EWC	ELECTRIC WATER COOLER	RDL	ROOF DRAIN LEADER
EWH	ELECTRIC WATER HEATER	RL	ROOF LEADER
EWS	EYE WASH STATION	RO	REVERSE OSMOSIS WATER
EX	EXISTING	RWL	RAIN WATER LEADER
F	FAHRENHEIT	SAN	SANITARY SEWER
FCO	FLOOR CLEANOUT	SCFM	STANDARD CUBIC FOOT/MINUTE
FCW	FILTERED COLD WATER	SCW	SOFTENED COLD WATER
FD	FLOOR DRAIN	SDMH	STORM DRAIN MANHOLE
FDC	FIRE DEPARTMENT (HOSE) CONNECTION	SHD	SHOWER DRAIN
FM	FLOW METER	SHD	SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
FOP	FUEL OIL PUMP	SP	SUMP PUMP
FOR	FUEL OIL RETURN	SPR	SPRINKLER LINE
FOS	FUEL OIL SUPPLY	SQFT	SQUARE FEET
FOV	FUEL OIL VENT	SSTL	STAINLESS STEEL
FS	FLOOR SINK	ST	STORAGE TANK
FS	FLOW SWITCH	SW	STORM WATER
FU	FIXTURE UNITS		
		TCV	TEMPERATURE CONTROL VALVE
GAL	GALLON	TD	TEMPERATURE DIFFERENCE
GCO	GRADE CLEANOUT	TDH	TOTAL DYNAMIC HEAD
GPD	GALLONS PER DAY	TEMP	TEMPERATURE
GPH	GALLONS PER HOUR	TMV	THERMOSTATIC MIXING VALVE
GPM	GALLONS PER MINUTE	TP	TRAP PRIMER
GPR	GAS PRESANURE REGULATOR	TSTAT	THERMOSTAT
GRS	GAS REGULATOR STATION	TWR	TEMPERED WATER RETURN
GT	GREASE TRAP	TWS	TEMPERED WATER SUPPLY
GVTR	GAS VENT THROUGH ROOF	TYP	TYPICAL
GWH	GAS FIRED WATER HEATER		
H&CW	HOT AND COLD WATER	UPC	UNIFORM PLUMBING CODE
HB	HOSE BIBB	V	VENT
HD	HUB DRAIN	VAC	VACUUM
HEX	HEAT EXCHANGER	VB	VACUUM BREAKER
HP	HORSEPOWER	VCO	VACUUM CLEANER OUTLET
HS	HAND SINK	VP	VACUUM PUMP
HST	HOT WATER STORAGE TANK (DOMESTIC)	VS	VENT STACK
		VTR	VENT THROUGH ROOF
HW	DOMESTIC HOT WATER	W	WASTE
HWR	DOMESTIC HOT WATER RETURN	WC	WATER CLOSET
HWR	DOMESTIC WATER RETURN	WCO	WALL CLEANOUT
HWS	DOMESTIC HOT WATER SUPPLY	WG	WATER GAGE
HWB	HOT WATER BOILER	WH	WALL HYDRANT
HWCP	HOT WATER CIRCULATING PUMP	WH	WATER HEATER
HWP	HOT WATER PUMP	WHA	WATER HAMMER ARRESTER
HYD	HYDRANT	WL	WATER LINE
		WM	WATER METER
ICW	INDUSTRIAL COLD WATER	WPD	WATER PRESANURE DROP
INV	INVERT	WS	WASTE STACK
IPC	INTERNATIONAL PLUMBING CODE		
IRW	IRRIGATION WATER	YCO	YARD CLEANOUT
IW	INDIRECT WASTE	YH	YARD HYDRANT
IWH	INSTANTANEOUS WATER HEATER		
IWR	INDUSTRIAL WATER RETURN		
IWS	INDUSTRIAL WATER SUPPLY		
KW	KILOWATT		
KWHR	KILOWATT-HOUR		

GENERAL NOTES

- THE PLUMBING SYSTEM SHALL CONFORM TO CURRENT INTERNATIONAL PLUMBING CODE.
- PROVIDE DOMESTIC HOT WATER A MAXIMUM TEMP OF 110 DEG. F AT THE FIXTURE (PER ADA SPECS), UNLESS SPECIFIC APPLIANCES OR EQUIPMENT SPECIFICALLY REQUIRE HIGHER TEMPERATURE WATER SUPPLY.
- UNLESS OTHERWISE SPECIFIED OR DIRECTED, PROVIDE IN ACCORDANCE WITH ASHRAE HANDBOOK SERIES (APPROPRIATE CHAPTERS), ASHRAE STANDARD 90.1, AND THE ENERGY CONSERVATION REQUIREMENTS OF THE CONTRACT. SIZE AND PLACE EQUIPMENT SO THAT IT IS EASILY ACCESSIBLE AND REMOVABLE FOR REPAIR OR REPLACEMENT.
- SEE ARCHITECTURAL PLANS FOR EXACT LOCATION OF ALL PLUMBING FIXTURES.
- COORDINATE PLUMBING PIPING WITH AIR CONDITIONING DUCTS, ELECTRICAL CONDUIT AND ALL TRADES.
- CONTRACTOR SHALL VERIFY DISTANCE TO CONNECTION TO EXISTING UTILITIES PRIOR TO BID.
- ABOVE GROUND DOMESTIC WATER PIPING WILL BE ASTM B88, TYPE "L" COPPER WITH SOLDERED JOINTS AND WROUGHT COPPER ASME B16.22 OR CAST IRON ASME B16.18 FITTINGS. BELOW GROUND DOMESTIC WATER PIPING WILL BE TYPE "K" SOFT COPPER WITH BRAZED JOINTS AND WROUGHT COPPER ASME B16.22 FITTINGS.
- ABOVE GRADE HORIZONTAL AND VERTICAL RUN SANITARY DRAINAGE, WASTE AND VENT PIPING WILL BE SERVICE-WEIGHT, CAST IRON SOIL PIPE ASTM A888 WITH NO-HUB COUPLINGS AND FITTINGS. BELOW GRADE SANITARY DRAINAGE AND WASTE PIPING WILL BE CAST IRON ASTM A74 HUBBED PIPE AND FITTINGS.
- ALL SANITARY DRAINAGE, WASTE AND VENT PIPING WILL BE LOCATED EITHER BELOW SLAB, IN PIPE CHASES OR WITHIN WALLS AS REQUIRED. COMPLETE ACCESSIBILITY WILL BE AVAILABLE TO ALL CLEANOUTS IN THE SANITARY DRAINAGE PIPING AND INTERVALS WILL BE SPACED ACCORDING TO THE INTERNATIONAL PLUMBING CODE.
- PROVIDE VALVES ON ALL BRANCH LINES SERVING TWO OR MORE FIXTURES OR EQUIPMENT ITEMS.
- REFER TO SPECIFICATIONS FOR ALL MATERIALS NOT LISTED IN SCHEDULES OR OTHERWISE NOTED.
- DRAINAGE PIPING SIZED 3" TO 6" SHALL BE SLOPED NO LESS THAN 1/8" / FT. PIPING SIZED 2-1/2" OR LESS SHALL BE SLOPE NO LESS THAN 1/4"/FT.
- ROUGH-IN WASTES AND SUPPLIES TO SPECIAL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND MAKE FINAL CONNECTIONS. ALL SUPPLIES SHALL HAVE SHUT-OFF VALVE. INSTALL VACUUM BREAKERS WHERE REQUIRED BY CODE.
- VALVES LOCATED ABOVE THE CEILING SHALL BE EASILY ACCESSIBLE BY EITHER REMOVABLE CEILING TILES OR ACCESS PANELS. CONTRACTOR SHALL PROVIDE AND COORDINATE ALL NECESSARY ACCESS PANELS.
- COMPLETE LAYOUT DRAWINGS SHALL BE AS REQUIRED BY SPECIFICATION 22 05 11 PARAGRAPH, SUBMITTALS. CONSTRUCTION WORK SHALL NOT START ON ANY SYSTEM UNTIL THE LAYOUT DRAWINGS HAVE BEEN APPROVED.

GENERAL FIRE PENETRATION REMEDIATION NOTES

- SLEEVE AND FIRE STOP ALL PENETRATIONS THROUGH RATED WALLS, FLOORS AND CEILINGS IN ACCORDANCE WITH APPLICABLE UL STANDARDS, STATE AND LOCAL CODE REQUIREMENTS. SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF FIRE RATED ASSEMBLIES.
- ALL EXISTING FIRE PENETRATIONS DISTURBED DURING THE COMPLETION OF THE PROJECT'S CONSTRUCTION SHALL BE BROUGHT UP TO APPLICABLE UL STANDARDS, STATE AND LOCAL CODE REQUIREMENTS.
- ALL EXISTING PENETRATIONS THROUGH RATED WALLS, FLOORS AND CEILINGS SHALL BE BROUGHT INTO COMPLIANCE WITH APPLICABLE UL STANDARDS, STATE AND LOCAL CODE REQUIREMENTS. SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF FIRE RATED ASSEMBLIES.

DEDUCTIVE ALTERNATES

- DEDUCT ALL PLUMBING WORK IN EAST WING.

WATER HAMMER ARRESTOR SCHEDULE

P.D.I. SIZE	FIXTURE UNITS	SIZE	TYPE/MODEL NUMBER (WROUGHT COPPER SHELL)	NOTES
A	1-11	1/2"	75001-S	1,2
B	12-32	3/4"	75002-S	1,2
C	33-60	1"	75003-S	1,2

NOTES:

- REPRESENTS PLUMBING AND DRAINAGE INSTITUTE "STANDARD P.D.I.-WH201".
- REPRESENTS ARRESTOR TYPE AND ASSOCIATED MODEL NUMBER DERIVED FROM JOSAM CO. (SHOCK ABSORBERS, WROUGHT COPPER SHELL) AND IS USED AS A STANDARD FOR HELPING DETERMINE PROPER SELECTION FROM OTHER MANUFACTURERS EQUALLY COMPETENT IN THE FABRICATION OF AND USING THE SIZING METHOD ESTABLISHED IN ACCORDANCE WITH PLUMBING DRAINAGE INSTITUTE (P.D.I.).

PLUMBING SYMBOLS

	DIRECTION OF PIPE PITCH (DOWN)
	DIRECTION OF FLOW
	ANCHOR
	REDUCER OR INCREASER
	ECCENTRIC REDUCER
	TOP CONNECTION, 45° OR 90°
	BOTTOM CONNECTION, 45° OR 90°
	SIDE CONNECTION
	CAPPED OUTLET
	RISE OR DROP IN PIPE
	UNION
	PIPE UP
	PIPE DOWN
	POINT OF CONNECTION BETWEEN NEW AND EXISTING WORK
	LIMIT OF DEMOLITION
	INVERTED BUCKET TRAP SET INCLUDING PIPING ACCESSANORIES
	FLOAT & THERMOSTATIC TRAP SET INCLUDING PIPING ACCESSORIES
	STRAINER
	THERMOMETER
	PRESSURE GAGE
	FLOW ELEMENT
	CLEAN OUT
	HOSE BIB
	FLOOR DRAIN W/ TRAP PRIMER
	NEW WORK NOTE (SEE SCHEDULE)
	DEMO WORK NOTE (SEE SCHEDULE)
	ISOLATION VALVE
	WATER HAMMER ARRESTOR
	SANITARY SEWER CLEANOUT (FLOOR)
	SANITARY SEWER CLEANOUT (GRADE)
	NEW COLD WATER
	NEW HOT WATER
	NEW SANITARY SEWER
	NEW SAN VENT PIPING
	NEW HOT WATER RECIRCULATION
	EXISTING COLD WATER
	EXISTING HOT WATER
	EXISTING SAN PIPING
	EXISTING HOT WATER RECIRCULATION
	MEDICAL AIR
	MEDICAL OXYGEN
	MEDICAL VACUUM
	GATE VALVE
	GLOBE VALVE
	GATE VALVE WITH 3/4 " HOSE ADAPTER
	CHECK VALVE
	ANGLE GLOBE VALVE
	BUTTERFLY VALVE
	BALL VALVE
	SOLENOID VALVE (2 POSITION)
	PRESSURE REGULATING VALVE
	AUTOMATIC FLOW CONTROL VALVE
	PRESSURE RELIEF VALVE
	MANUAL AIR VENT
	TEST PLUG (PRESANURE/TEMPERATURE)
	AUTOMATIC AIR VENT

CONSTRUCTION DOCUMENT SUBMISSION FULLY SPRINKLERED

<div>CONSULTANTS:</div>		<div>ARCHITECT/ENGINEERS:</div>		<div>Drawing Title <b>PLUMBING NOTES, SYMBOLS AND ABBREVIATIONS</b></div>		<div>Project Title <b>RENOVATE MEDICAL SURGICAL UNIT</b></div>		<div>Project Number <b>544-13-102</b></div>		<div>OFFICE OF CONSTRUCTION AND FACILITIES MANAGEMENT</div>	
								<div>Building Number <b>100</b></div>		<div>Department of Veterans Affairs</div>	
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